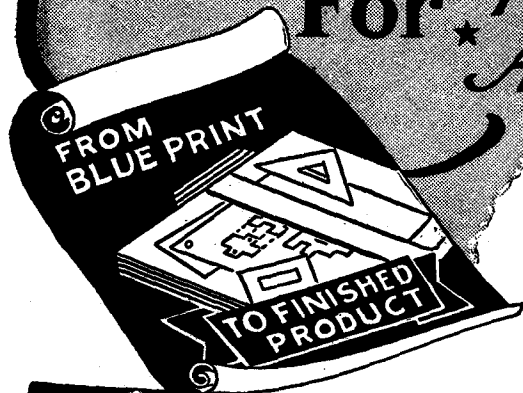


# Willor

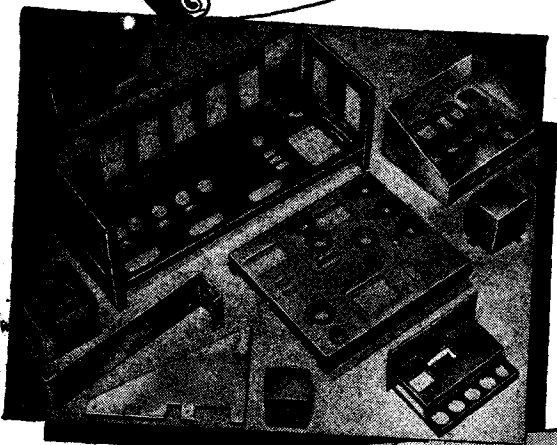
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## WILLOR STAMPINGS

A modern plant, including designing, Tool and Die making — automatic stamping — machining — welding — assembling — spraying — large or small production runs — special custom built products, at low cost.

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Complete from Design to Finished Product



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is your definite assurance of **SKILL** and **ACCURACY** for **PERFORMANCE**.

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Our large assortment of stock dies may fit your requirements and result in real savings for you.

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**OVER 40 YEARS OF EXPERIENCE**

## MICROWAVE RELAY

a total of 40 telegraph channels, two-way phone channel, and a two-way facsimile channel. Frequency modulation is used and each telegraph signal goes out as two frequencies; one is a marking pulse and the other a spacing pulse to the receiving printer. A 70 cycle swing of signals spaced 300 cycles apart is involved.

### Progress

In its six months operation to date, the radio relay circuit has performed so well that Western Union has filed an application with



One of the 4,000-mc antennas is examined by H. P. Corwith, assistant chief engineer of Western Union.

the FCC for permission to install equipment of a similar type from New York to Pittsburgh, Pittsburgh to Washington, Washington to New York, and New York to Philadelphia. Its establishment at this time will permit the removal of about 2500 miles of pole lines with some 54,000 miles of wires and 12 miles of aerial and underground cable.

Besides terminal equipment at the four cities, 21 intermediate relay stations in towers on mountains ranging from 14 to 55 miles apart would be constructed. Sites for these have been acquired.

. . .

## Tube for SCR 270 Radar

COOPERATIVE ACTIVITY between the Army Signal Corps and Westinghouse Electric Corp. produced a special radar tube shown in

KNOW

SPECIAL and elaborate measurements of these things. We are always ready to swap our own for yours. There's

## CATHOD

Tests a telegraph over the entire range of seconds, a type screen. own people, aid in maintaining production for



# Why **MEPCO** "Tru Tolerance" **RESISTORS**

are "Tops" with Manufacturers of  
Instruments, Radio, Electronic Equipment

## They're Triple Improved!

### ACETATE LABEL

Tougher, clearer, more durable covering. Protects winding from mechanical handling. Prevents loss from peeling label. Attends fungus protection to winding.

### ADDED INTERNAL INSULATION

Cross-over wires are insulated from rest of winding with acetate cloth. An exclusive Mepeco feature (patent pending).

### DOUBLE SEAL IMPREGNATION

Prevents breakdowns and short-circuits. Withstands humidity and salt spray tests better. Is fungus resistant.

### Non-Hygroscopic Ceramic Forms:

High insulating value, low expansion coefficient, high mechanical strength.

### Highest Grade Alloy Wire:

Especially enameled to meet most rigid tests.

### Extra Terminal Protection:

Lug type winding leads and lug embedded and molded into one unit. Lead wire type securely anchored in grooves with winding wire protected so as to prevent possible breaking in handling.

GET THE MEPCO RESISTOR GUIDE. IT'S FREE! Shows all Mepeco standard sizes and gives complete data as to electrical and mechanical characteristics.

### True Tolerance Precision Resistors:

Standard tolerance 1%. Special tolerances down to 0.10% on special orders.

### Severe Breakdown Test

for every unit. Rejections minimized by special winding technique which prevents chafing of wire.

### Careful Calibration

and precision winding keep all units well within specified tolerances.

Send us your requirements on special resistors for quotation.



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RADAR TUBE

(continued)

accompanying illustrations. It was used in long-range detection sets, one of which revealed the impending attack on Pearl Harbor and another guarded the Panama Canal a year before.

Of revolutionary design, the tube produced ten times the power of uhf tubes previously built and in



Finished example of type WL 530 radar tube. This unit served in the famous SCR 270 which detected the approaching Japanese attackers of Pearl Harbor. Production of copper-to-glass seal was one of the difficult parts in development of the WL 530 radar tube. Here a worker in the Fairmont, W. Va., plant of Westinghouse molds the anode seal.



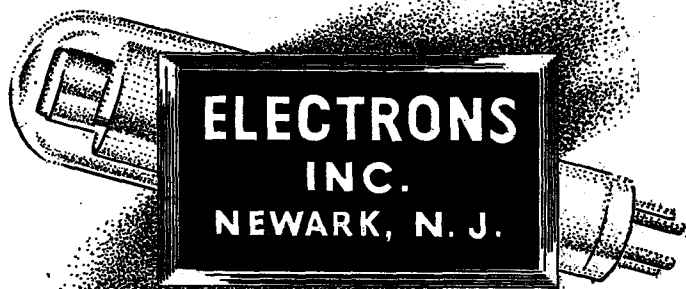
involved manufacturing problems at first regarded as insurmountable. Besides geometrical and physical characteristics departing radically from known techniques, the tube called for extremely difficult copper-to-glass feather-edge seals and momentary peak currents which de-

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AFFILIATE



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## ... SINCE 1928

● Specialization invariably results in better functioning. For over 17 years we have concentrated on continuous, systematic research in the development of hot-cathode, gaseous-discharge Rectifier and Control Rectifier Tubes, which would satisfy the demand for power tubes of outstanding reliability.

● EL Rectifier Tubes have a unique, tough cathode coating, devised to withstand the particularly heavy ion bombardment experienced by gas-filled tubes for industrial use. This is characteristic of the many details of design and manufacture which result in rectifier tubes of longer life, with the ability to handle short circuits and momentary overloads in the critical interval that occurs before the fuse is cleared.

● EL Rectifier Tubes have met with widespread acceptance, not only by industry but for Government use, as evidenced by the fact that several of our Rectifier Tubes are on the Army-Navy Preferred List. We invite you to contact us regarding your Rectifier and Control Rectifier Tube requirements and suggest that you ...

Write for Descriptive Literature

**ELECTRONS, INCORPORATED**  
127 SUSSEX AVENUE NEWARK 4, N. J.

# EL Rectifier TUBES

RADAR TUBE

manded a specially-treated tungsten filament able to withstand ten times the voltages believed possible.

The project was taken over by Westinghouse electronic engineer Ilia E. Mourontseff, who had, in 1933, done line-of-sight transmission work which led to the detection of automobiles passing on the highway outside the Pittsburgh plant of the company. Tubes of similar construction are expected to contribute to the advancement of f-m and television equipment.

...

## Drafting Aids to Relay Profiling

By F. J. BINGLEY  
Chief Television Engineer  
Philco Radio & Television Corp.  
Philadelphia, Pa.

PROFILING of the terrain along a line-of-sight television path recently built between Washington and Philadelphia (See ELECTRONICS, Oct. 1945) was necessary because it was desired to obtain at least 100 feet of ground clearance at all points on the transmission path. This clearance was to be provided by the use of two 100-foot antenna towers, one for receiving and the other for transmitting television signals at each relay site selected.

After a study of U. S. Coast and Geodetic Survey maps, four tentative hilltop sites for relay stations were chosen. Then a device, which has been named the Contourograph, was used to prepare profiles of the ground contour between each pair of sites to learn the exact ground clearance along each section of the proposed network.

The instrument is shown in the accompanying illustration. It consists of a double-ended T-square, actually an H-square, with an added cursor. The two vertical legs of the H are used to mark on the map the two end points of a path which is to be profiled, with one leg movable to permit adjustments in the length of the contour section.

*Distance and Elevation*

The slider which is moved along the horizontal leg of the H-square is graduated in feet of altitude to an arbitrary scale. Thus as it is

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